

the film pinched therebetween, until the cutting edge implement, heated to the temperature between about 600° F and about 800° F, severs the plurality of layers of the film by melting but not burning the plurality of layers, contacts the anvil, and seals the resulting severed edges.

37. (New) An apparatus according to claim 36, further comprising:
a first cam apparatus for laterally moving the heated cutting edge implement along a closed path; and
a second cam apparatus for moving the anvil along a path that is at least in part substantially parallel to a portion of the closed path traveled by the heated cutting edge implement.

38. (New) An apparatus according to claim 37, wherein the heated cutting edge implement, the film, and the anvil all synchronously move in substantially the same lateral direction while the plurality of layers of the film is sealed.

39. (Amended) An apparatus according to claim 36, wherein the heated cutting edge implement is a hot wire that is supported for substantially its entire effective cutting length by an insulating member.

40. (Amended) An apparatus according to claim 36, wherein the heated cutting edge implement comprises a hot wire.--

REMARKS

Applicants request favorable reconsideration and allowance of the subject application in view of the preceding amendments and the following remarks.

Claims 1-4, 7, 8, 11, 12, 15-18, 21-24, 26-30, and 33-40 are presented for consideration. Claims 1, 8, 15, 23, 27, and 36 are independent.

Claims 13 and 14 have been canceled herein without prejudice or disclaimer. Applicants have amended claims 1-4, 7, 8, 11, 12, 15-18, 21-24, 26-30, 33, and 34 to clarify features of the subject invention. Claims 36-40 are newly added to provide Applicants with an additional scope of coverage. Support for these changes and additions can be found in the original application as filed. Therefore, no new matter has been added.

Applicant's representatives would like to thank Examiner Weeks for the cordial and productive personal interview of April 24, 2003. During the interview, it was agreed that Applicants would submit a supplemental amendment to clarify the aspect of severing and sealing a plurality of layers within the recited temperature range. Applicants have, therefore, amended claims 1-4, 7, 8, 11, 12, 15-18, 21-24, 26-30, 33, and 34 and added claims 36-40 in accordance with the discussion in the interview. Specifically, Applicants assert that the cited Coleman et al., Wildmoser et al., and Gorlich et al. patents do not teach, whether taken alone or in combination, at least the feature of using a cutting edge implement heated to a temperature between about 600° F and about 800° F, a temperature sufficient to melt but not to burn a thermoplastic film, to sever and seal a plurality of layers of the thermoplastic film, as recited in each of the pending independent claims.

Applicants submit, therefore, that the subject application is in condition for allowance. Favorable reconsideration, withdrawal of the rejections set forth in the Office Action dated September 23, 2003, and an early Notice of Allowance are requested.

Applicants' undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to the address given below for S.C. Johnson & Son, Inc.

Respectfully submitted,

A handwritten signature in dark ink, appearing to read "Steven E. Warner", is written over a horizontal line.

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VERSION WITH MARKINGS SHOWING CHANGES MADE TO CLAIMS

1. (Amended) A method of severing and sealing a plurality of layers of film formed of a thermoplastic material, the method comprising the steps of:

heating a cutting edge implement to a temperature between about 600° F and about 800° F for severing and sealing a plurality of layers of the film, the temperature being sufficient to melt but not to burn the thermoplastic material;

feeding a plurality of layers of the film between the heated cutting edge implement and an opposing surface;

moving the heated cutting edge implement and the opposing surface relative to one another to pinch the plurality of layers of film therebetween; and

thereafter, suspending any relative lateral movement between the heated cutting edge implement, the plurality of layers of the film, and the opposing surface, while relatively biasing the heated cutting edge implement and the opposing surface together with the plurality of layers of film pinched therebetween, until the cutting edge implement, heated to the temperature between about 600° F and about 800° F, severs [cuts through] the plurality of layers of the film by melting but not burning the plurality of layers, contacts the opposing surface, and seals the plurality of layers of the film together.

2. (Amended) A method according to claim 1, wherein the moving step comprises the step of advancing the heated cutting edge implement in a direction substantially perpendicular relative to a contact area of the opposing surface.

3. (Amended) A method according to claim 1, wherein the suspending step comprises synchronously moving the heated cutting edge implement, the film, and the opposing surface in substantially the same lateral direction.

4. (Amended) A method according to claim 1, wherein the heated cutting edge implement is a hot wire, and further comprising the step of, prior to the moving step, supporting the hot wire for substantially its entire effective cutting length.

7. (Amended) A method according to claim 1, wherein the suspending step comprises suspending relative lateral movement between the heated cutting edge implement, the film, and the opposing surface for approximately one second.

8. (Amended) A method of severing and sealing a plurality of layers of film, the method comprising the steps of:

[clamping a plurality of layers of the film between opposing surfaces;]

heating a cutting edge implement to a temperature between about 600° F and about 800° F for severing and sealing a plurality of layers of the film, the temperature being sufficient to melt but not to burn the film; [and]

feeding a plurality of layers of the film between the heated cutting edge implement and an opposing surface;

moving the heated cutting edge implement and the opposing surface relative to one another to pinch the plurality of layers of the film therebetween; and

relatively biasing the heated cutting edge implement and the opposing surface together with the plurality of layers of film pinched therebetween, until the cutting edge implement, heated to the temperature between about 600° F and about 800° F, severs

the plurality of layers of the film by melting but not burning the plurality of layers and seals [moving the cutting edge implement past one of the opposing surfaces toward the other surface so that the cutting edge implement presses against the film toward the other surface for a period of time sufficient to sever the film and seal] the resulting severed edges.

11. (Amended) A method according to claim 8, wherein the heated cutting edge implement is a hot wire, and further comprising the step of supporting the hot wire for substantially its entire effective cutting length.

12. (Amended) A method according to claim 8, wherein the moving step comprises pinching the film between the heated cutting edge implement and the other surface for approximately one second.

13. (Canceled)

14. (Canceled)

15. (Amended) An apparatus for severing and sealing a plurality of layers of film formed of a thermoplastic material, the apparatus comprising:

a cutting edge implement heated to a temperature between about 600° F and about 800° F for severing and sealing a plurality of layers of the film, the temperature being sufficient to melt but not to burn the thermoplastic material;

an anvil;

means for feeding a plurality of layers of the film between the heated cutting edge implement and the anvil;

means for moving the heated cutting edge implement and the anvil relative to one another to pinch the plurality of layers of film therebetween; and

means for suspending any relative lateral movement between the heated cutting edge implement, the film, and the anvil, while pressing the heated cutting edge implement toward the anvil with the film pinched therebetween, until the cutting edge implement, heated to the temperature between about 600° F and about 800° F, severs [melts through] the plurality of layers of the film by melting but not burning the plurality of layers, contacts the anvil, and seals the plurality of layers of the film together.

16. (Amended) An apparatus according to claim 15, further comprising:

means for laterally moving the heated cutting edge implement along a closed path; and

means for moving the anvil along a path that is at least in part substantially parallel to a portion of the closed path traveled by the heated cutting edge implement.

17. (Amended) An apparatus according to claim 16, wherein the heated cutting edge implement, the film, and the anvil all synchronously move in substantially the same lateral direction while the plurality of layers of the film is [melted and] sealed.

18. (Amended) An apparatus according to claim 15, wherein the heated cutting edge implement is a hot wire that is supported for substantially its entire effective cutting length by an insulating member.

21. (Amended) An apparatus according to claim 15, wherein the heated cutting edge implement comprises a hot wire.

22. (Amended) An apparatus according to claim 15, wherein the suspending means suspends any relative lateral movement between the heated cutting edge implement, the film, and the anvil for approximately one second.

23. (Amended) A method of severing and sealing a plurality of layers of film formed of a thermoplastic material, the method comprising the steps of:

heating a cutting edge implement to a temperature between about 600° F and about 800° F for severing and sealing a plurality of layers of the film, the temperature being sufficient to melt but not to burn the thermoplastic material,

pinching the a plurality of layers of the film between a substrate and the a cutting edge implement that is heated to the a temperature between about 600° F and about 800° F [sufficient to melt but not to burn the thermoplastic material]; and

pressing the cutting edge implement toward the substrate with the plurality of layers of the film pinched therebetween, until the cutting edge implement, heated to the temperature between about 600° F and about 800° F, severs [melts through] the plurality of layers of the film by melting but not burning the plurality of layers, contacts the substrate, and seals the plurality of layers of the film together.

24. (Amended) A method according to claim 23, further comprising the step of feeding the plurality of layers of film in a lateral direction, and synchronously moving the substrate and the heated cutting edge implement in the lateral direction during the pinching and pressing steps.

26. (Amended) A method according to claim 23, wherein the heated cutting edge implement is a hot wire, and further comprising the step of, prior to the pinching and pressing steps, supporting the hot wire for substantially its entire effective cutting length.

27. (Amended) An apparatus for severing and sealing a plurality of layers of film formed of a thermoplastic material, the apparatus comprising:

a cutting edge implement that is heated to a temperature between about 600° F and about 800° F for severing and sealing a plurality of layers of the film, the temperature being sufficient to melt but not to burn the thermoplastic material;

an insulating insert for supporting the heated cutting edge implement;

a base member for supporting the insulating insert;

an anvil for placement adjacent to the heated cutting edge implement on a side of the heated cutting edge implement opposite from the insulating insert and the base member;

means for feeding a plurality of layers of the film between the heated cutting edge implement and the anvil;

means for moving the heated cutting edge implement and the anvil relative to one another to pinch the plurality of layers of the film therebetween; and

means for suspending any relative lateral movement between the heated cutting edge implement, the film, and the anvil, while pressing the heated cutting edge implement toward the anvil with the plurality of layers of the film pinched therebetween, until the cutting edge implement, heated to the temperature between about 600° F and about 800° F, severs [melts through] the plurality of layers of the film by melting but not

burning the plurality of layers, contacts the anvil, and seals the plurality of layers of the film together.

28. (Amended) An apparatus according to claim 27, further comprising:
means for laterally moving the heated cutting edge implement along a closed path; and
means for moving the anvil along a path that is at least in part substantially parallel to a portion of the closed path traveled by the heated cutting edge implement.

29. (Amended) An apparatus according to claim 28, wherein the heated cutting edge implement, the film, and the anvil all synchronously move in substantially the same lateral direction while the film is [melted and] sealed.

30. (Amended) An apparatus according to claim 27, wherein the heated cutting edge implement is a hot wire that is supported for substantially its entire effective cutting length by the insulating insert.

33. (Amended) An apparatus according to claim 27, wherein the heated cutting edge implement comprises a hot wire.

34. (Amended) An apparatus according to claim 27, wherein the suspending means suspends any relative lateral movement between the heated cutting edge implement, the film, and the anvil for approximately one second.